Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Advanced chronic kidney disease (CKD): percent of patients on angiotensin-converting enzyme (ACE) inhibitors or angiotensin II receptor blockers (ARBs).

Source(s)

Renal Physicians Association. Appropriate patient preparation for renal replacement therapy. Rockville (MD): Renal Physicians Association; 2002 Oct 1. 78 p. (Clinical Practice Guideline; no. 3).

Measure Domain

Primary Measure Domain

Process

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the Measure Validity page.

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure assesses the percent of patients on angiotensin-converting enzyme (ACE) inhibitors or angiotensin II receptor blockers (ARBs) among patients with advanced chronic kidney disease (CKD) with blood pressure greater than 130/80 mmHg with or without antihypertensive treatment.

Rationale

Patients with advanced chronic kidney disease (CKD) are situated at a crossroads between patients with less severe chronic kidney disease, where strict blood pressure control is a well established mainstay of therapy, and patients on dialysis, where blood pressure goals are not well understood. In the absence of strong scientific data to define therapeutic targets, blood pressure goals in dialysis patients remain

extrapolated from the general population. Because of significantly increased cardiovascular risk in patients with both advanced CKD and diabetes, management of patients with both conditions deserves special attention.

Numerous randomized, controlled clinical trials have demonstrated that angiotensin-converting enzyme (ACE) inhibitors reduce the progression of CKD. These studies have examined type I and type II diabetic as well as non-diabetic nephropathies, utilizing endpoints such as serum creatinine, glomerular filtration rate (GFR), time to end-stage renal disease (ESRD), and death. Most investigations report that patients receiving an ACE inhibitor have a reduction in disease progression that is greater than for patients with similar levels of blood pressure control without ACE inhibition. The additional benefit conferred by ACE inhibitors is thought to be related, in part, to reduction in proteinuria levels. ACE inhibition has also been shown to reduce mortality and cardiovascular events in patients with pre-existing coronary artery disease and patients with diabetes mellitus and at least one other coronary artery disease risk factor. The mortality benefit conferred by ACE inhibitors may be greater for patients with elevated serum creatinine compared to those with normal renal function.

Patients with CKD often have coronary artery disease, diabetes, or other important cardiovascular risk factors. They are considered to be in the highest category for cardiac risk and are thus likely to derive benefit from ACE inhibition. Angiotensin II receptor blockers (ARBs) have also been shown to reduce progression of chronic kidney disease in subjects with type II diabetes mellitus. In one study, patients taking an ARB also had fewer hospitalizations for heart failure. There are no clinical outcomes data currently regarding ARB use and non-diabetic nephropathy. Similarly, no large trials in patients at risk for coronary artery disease have been undertaken.

Primary Clinical Component

Advanced chronic kidney disease; hypertension; antihypertensive therapy; angiotensin-converting enzyme inhibitors; angiotensin II receptor blockers

Denominator Description

The number of adult patients with advanced chronic kidney disease (CKD), not currently receiving renal replacement therapy, with blood pressure greater than 130/80 mmHg with or without antihypertensive treatment

Numerator Description

The number of patients from the denominator on angiotensin-converting enzyme (ACE) inhibitors or angiotensin II receptor blockers (ARBs)

Evidence Supporting the Measure

Evidence Supporting the Criterion of Quality

A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence

A formal consensus procedure involving experts in relevant clinical, methodological, and organizational sciences

A systematic review of the clinical literature

Evidence Supporting Need for the Measure

Need for the Measure

Unspecified

State of Use of the Measure

State of Use

Pilot testing

Current Use

Internal quality improvement

Application of Measure in its Current Use

Care Setting

Ambulatory Care

Physician Group Practices/Clinics

Professionals Responsible for Health Care

Physicians

Lowest Level of Health Care Delivery Addressed

Individual Clinicians

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

Stratification by Vulnerable Populations

Unspecified

Characteristics of the Primary Clinical Component

Incidence/Prevalence

Unspecified

Association with Vulnerable Populations

Unspecified

Burden of Illness

Elevated blood pressure is clearly an important risk factor for rapid progression of kidney disease and for cardiac hypertrophy.

Evidence for Burden of Illness

Foley RN, Parfrey PS, Harnett JD, Kent GM, Murray DC, Barre PE. Impact of hypertension on cardiomyopathy, morbidity and mortality in end-stage renal disease. Kidney Int. 1996 May;49(5):1379-85. PubMed

Foley RN, Parfrey PS. Cardiac disease in chronic uremia: clinical outcome and risk factors. Adv Ren Replace Ther. 1997 Jul;4(3):234-48. [160 references] PubMed

Mall G, Huther W, Schneider J, Lundin P, Ritz E. Diffuse intermyocardiocytic fibrosis in uremic patients. Nephrol Dial Transplant. 1990;5(1):39-44. PubMed

Shiigai T, Hattori K, Iwamoto H, Owada A. Long-term enalapril therapy in patients with chronic renal failure on a low-protein diet. A prospective randomized comparison with metoprolol. Nephron. 1998;79(2):148-53. [45 references] PubMed

Utilization

Unspecified

Costs

Unspecified

Institute of Medicine (IOM) Healthcare Quality Report Categories

IOM Care Need

Living with Illness

IOM Domain

Effectiveness

Data Collection for the Measure

Case Finding

Users of care only

Description of Case Finding

Adult patients 18 years and older with advanced chronic kidney disease (CKD) with blood pressure greater than 130/80 mmHg with or without antihypertensive treatment

Denominator Inclusions/Exclusions

Inclusions
Adult patients age 18 years and older with chronic kidney disease stage 4 or 5 (glomerular filtration rate [GFR] less than or equal to 30 mL/min/1.73 m^2), not currently receiving renal replacement therapy, with blood pressure greater than 130/80 mmHg with or without antihypertensive treatment

Exclusions
Unspecified

Relationship of Denominator to Numerator

All cases in the denominator are equally eligible to appear in the numerator

Denominator (Index) Event

Clinical Condition

Therapeutic Intervention

Denominator Time Window

Time window precedes index event

Numerator Inclusions/Exclusions

Inclusions
The number of patients from the denominator on angiotensin-converting enzyme (ACE) inhibitors or angiotensin II receptor blockers (ARBs)

Exclusions
Unspecified

Measure Results Under Control of Health Care Professionals, Organizations and/or Policymakers

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

Numerator Time Window

Episode of care

Data Source

Administrative data

Laboratory data

Medical record

Pharmacy data

Level of Determination of Quality

Individual Case

Pre-existing Instrument Used

Unspecified

Computation of the Measure

Scoring

Rate

Interpretation of Score

Better quality is associated with a higher score

Allowance for Patient Factors

Unspecified

Standard of Comparison

Internal time comparison

Evaluation of Measure Properties

Extent of Measure Testing

Unspecified

Identifying Information

Original Title

Number of patients on ACE inhibitors or ARBs / number of patients with advanced CKD with blood pressure greater than 130/80 mmHg with or without antihypertensive treatment.

Measure Collection Name

Renal Physicians Association Clinical Performance Measures on Appropriate Patient Preparation for Renal Replacement Therapy

Measure Set Name

Clinical Performance Measures for Hypertension Recommendations

Submitter

Renal Physicians Association - Medical Specialty Society

Developer

Renal Physicians Association - Medical Specialty Society

Funding Source(s)

Ortho Biotech Products, LP

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Financial Disclosures/Other Potential Conflicts of Interest

There were none disclosed.

Adaptation

Measure was not adapted from another source.

Release Date

2002 Oct

Measure Status

This is the current release of the measure.

Source(s)

Renal Physicians Association. Appropriate patient preparation for renal replacement therapy. Rockville (MD): Renal Physicians Association; 2002 Oct 1. 78 p. (Clinical Practice Guideline; no. 3).

Measure Availability

The individual measure, "Number of patients on ACE inhibitors or ARBs / number of patients with advanced CKD with blood pressure greater than 130/80 mmHg with or without antihypertensive treatment," is published in "Renal Physicians Association Clinical Practice Guideline #3: Appropriate Patient Preparation for Renal Replacement Therapy."

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NQMC Status

This NQMC summary was completed by ECRI on May 23, 2003. The information was verified by the Renal Physicians Association on June 17, 2003.

Copyright Statement

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